

FIGURE 1

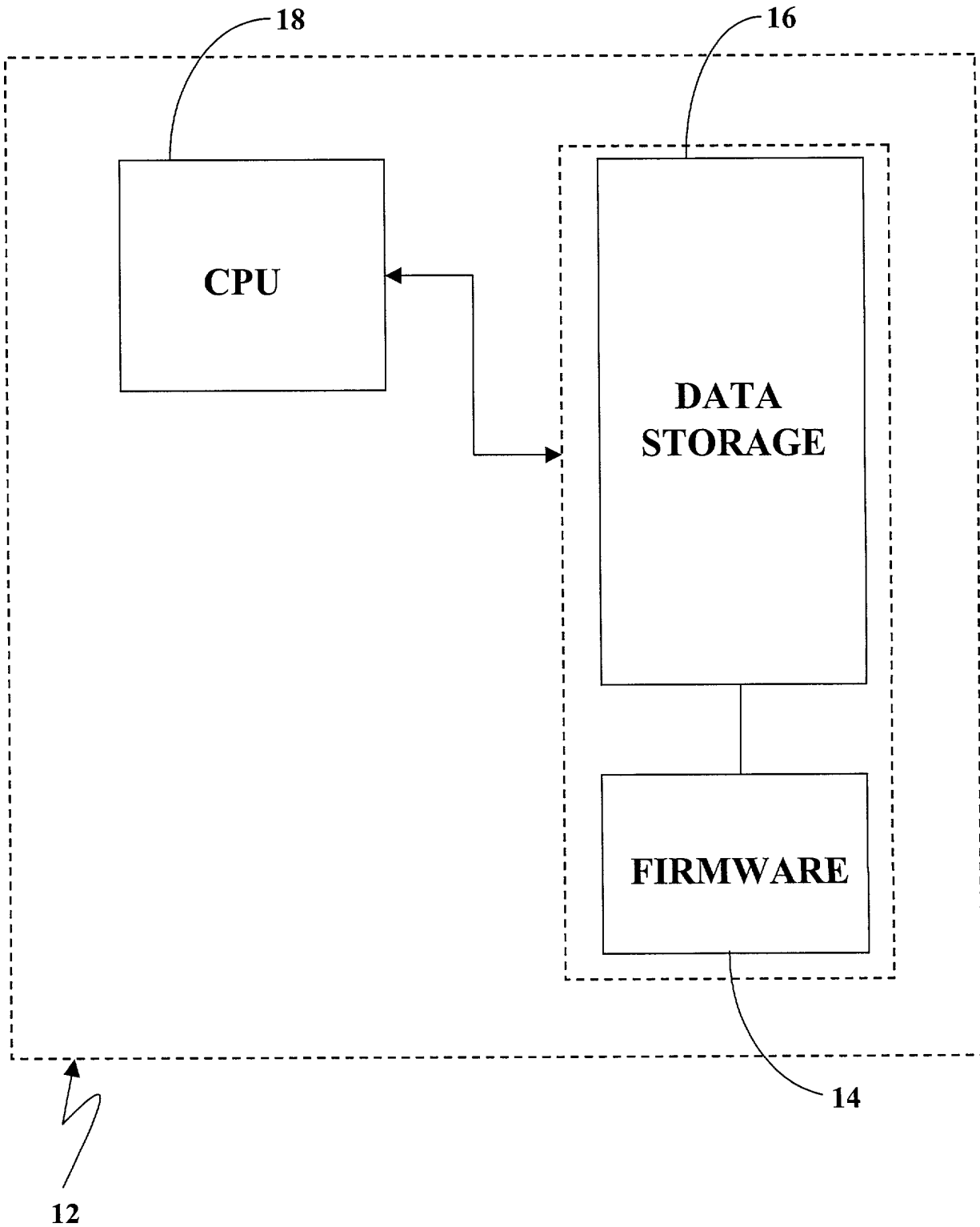


FIG. 2

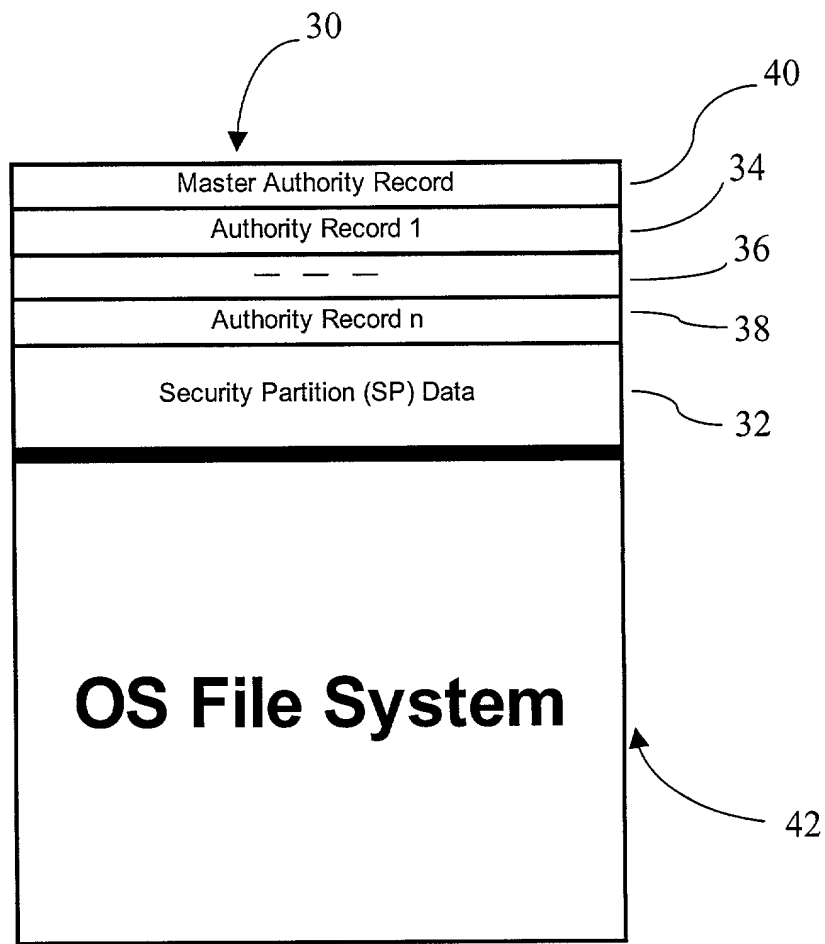


FIG. 3

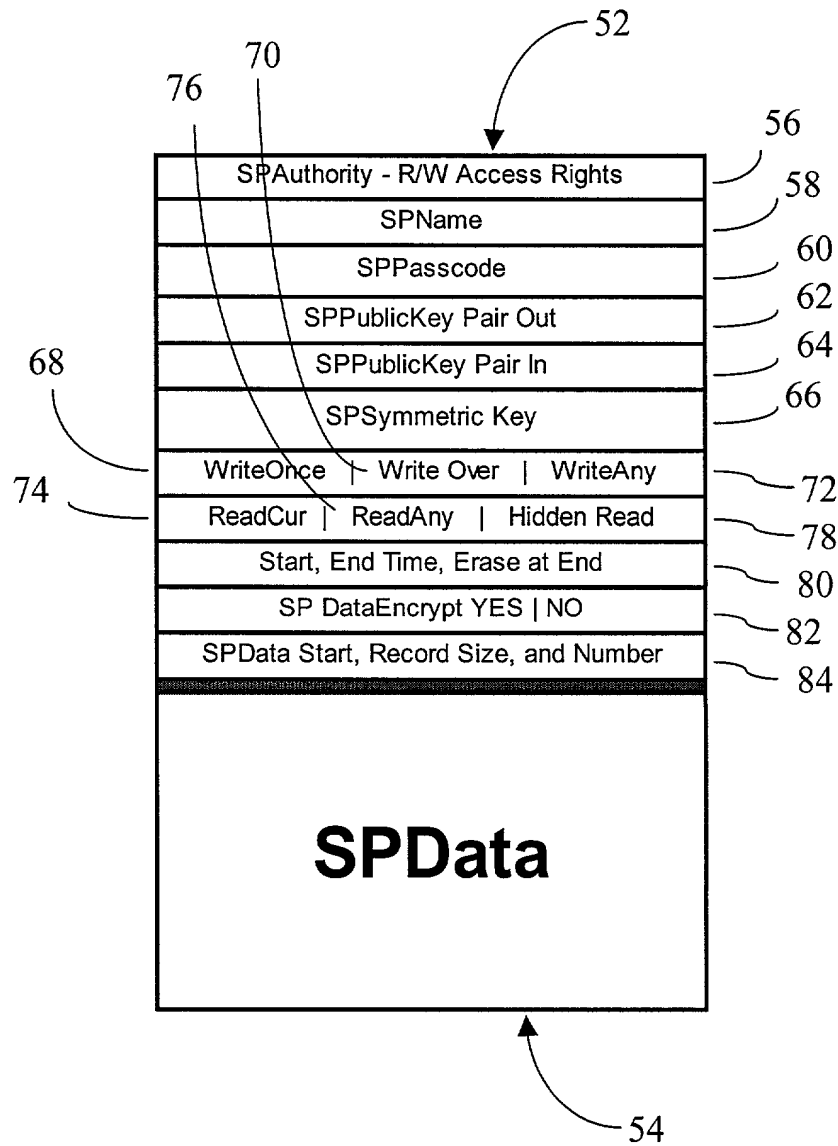


FIG. 4

FIGURE 5

Field	N	Bit Size	Byte Size	Note	Authority Source (See AuthSet Call)		
					Internal	External	Root
SPName	1	256	32	First Byte Null	InFrom Set	InFrom Set	InFrom Set
SPPasscode	1	128	16		InFrom CSet, Hidden	InFrom CSet, Hidden	InFrom CSet, Hidden
SPPublicKey-Out	1	4096	512		OutFrom Set	InFrom CSet, OutFrom Set	OutFrom Set
SPPrivateKey-Out	1	4096	512		Hidden	InFrom Set, Hidden	Hidden
SPPublicKey-In	1	4096	512		OutFrom Set	InFrom Cset	OutFrom Set
SPPrivateKey-In	1	4096	512		Hidden	InFrom CSet, Hidden	Hidden
SPSymKey	1	1024	128		Hidden	InFrom CSet, Hidden	Hidden
SPNonce	1	2048	256	avoid replay attacks	In Out from Set	In Out from Set	In Out from Set
SPAuthSource (Internal External Special)	1	2	0.25		Not Applicable	Not Applicable	Not Applicable
SPDataWriteMode (WriteOnce WriteOver WriteAny)	1	2	0.25		InFrom Set	InFrom Set	WriteAny
SPDataReadMode (ReadCur ReadAny Hidden)	1	2	0.25		InFrom Set	InFrom Set	ReadAny
SPDataEncrypt (YES NO)	1	1	0.125		InFrom Set	InFrom Set	InFrom Set
SPStartTime	1	128	16		InFrom Set	InFrom Set	InFrom Set
SPEndTime	1	128	16		InFrom Set	InFrom Set	InFrom Set
SPERaseAtExpiration (YES NO)	1	1	0.125		InFrom Set	InFrom Set	InFrom Set
SPNumberOfRecords	1	64	8		InFrom Set	InFrom Set	InFrom Set
SPRecordSize	1	64	8		InFrom Set	InFrom Set	min 3270
SPCurrentRecord	1	64	8		InFrom Set	InFrom Set	
SPDataStart (an absolute disk address)	1	768	96		Hidden	Hidden	Hidden
SPAuthority SPName (reader, writer, admin, encrypted passcode, certIN, certOut)*	64	32	256	First Byte Encodes REQUIRES	InFrom Set	InFrom Set	(1,1,1,1,1,1,...)
Total Bytes in One Auth Record		21,096	2,889				
Rounded Up			3,072		6 Disk Blocks		
SPData (the disk address for this is usually not contiguous with the authority record).		SPRecSize	193,536	is Other			
		* NumRecs	3,072*63	Authorities for the			
				Root Data other Sizes			

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FIGURE 6

Field	Bits	Bytes	Example	Notes
SPMagic	32	4	xF27F	
SPOffset	32	4	1844	header size may increase by more than one disk begin-end storagelimit item
SPVersion	32	4	1.01	text
SPCryptoSuite	128	16	RSA+RAJ D++	text Fixed in the Preferred Embodiment
SPVendor	128	16	Foobar Corp.	text
SPNumAuths	32	4	64	
SPAuthSize	32	4	6	In 512 Byte Blocks
SPRootPublicKeyIn	4096	512		From Root Auth Record
SPRootNonce	2048	256		Synthesized on demand
SPStorageLimits	8192	1024		Begin/End Absolute Disk Locations Synthesized from Auth Records

Note: Authority Partition Header is typically not writeable.

FIGURE 7

Call	Arguments							Notes
Calls that Read and Write Authority Records								
SPAuthHeader	AuthHeader	Returns Header						
SPSet	Name	Passcode	CertIN	CertOut	AuthRecord	View Modify Add Delete	Sets values for an authority	requires Admin privilege
SPCSet	Name	Passcode	CertIN	CertOut	AuthRecord	View Modify Add Delete	Secure Setting of values for authority, utilizes public key	requires Admin privilege
Calls that permit conventional Read and Write of Authority Data Records								
SPOpen	Name	Passcode	CertIN	CertOut	AuthRecord	Duration in Microseconds	Opens an SDpartition for authorized read and write	
SPClose	Name	Passcode	CertIN	CertOut	AuthRecord		Closes an Sdpartition for authorized read and write	
Calls that utilize SP's ability to hide secrets and hide basic cryptography								
SPSignThis	Name	Passcode	CertIN	CertOut	DatatoSign	PrivateKeyLocation	SignedData(returned)	
SPCheckThis	Name	Passcode	CertIN	CertOut	DatatoCheck	PrivateKeyLocation	Check(returned)	
SPProtRead	Name	Passcode	CertIN	CertOut	Data (returned)	MyPublicKey	Location	
SPProtWrite	Name	Passcode	CertIN	CertOut	Data	MyPublicKey	Location	SPSuccess (returned)
SPHashThis	Name	Passcode	CertIN	CertOut	DatatoHash	Hash (returned)	Location to Store	

Note.: Locations above are possibly complex in that they can specify other authority records that this authority has the right to read or write. So the location may be Name.RecordNumber, in general.

FIGURE 8

Error	Code Notes
SPSuccess	0
SPBad CertificateIN	1 Certificate In Failure
SPBad CertificateOUT	2 Certificate Out Failure
SPBad Name	3 Name not found
SPBad Passcode	4 Passcode failed
SPNo PublicKey-Out	5 For External Authority
SPNo PublicKey-In	6 For External Authority
SPNo PrivateKey-Out	7 For External Authority
SPNo PrivateKey-In	8 For External Authority
SPNoAuthority	9 You can't do this
SPPartition Full	10 The SP Partition is Full and writeover is not turned on
SPNo Space For Partition	11 You can't create this partition, no contiguous space
SPNo Security Support	12 SP Security Turned off on this device - Header Fail
SPRead Failure	13 Special SP Read Failed
SPWrite Failure	14 Special SP Write Failed